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Japan's Savings and External Surplus in the World Economy

Masaru Yoshitomi

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About the Author

Masaru Yoshitomi is Director General of the Economic Research Institute, Economic Planning Agency, Government of Japan

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277 Park Avenue
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Introduction

High Japanese savings are often alleged to be the fundamental cause of its large current account surplus. The argument runs that these high savings tend to flow out of the country, lowering the exchange rate of the Yen and producing a persistent external surplus.

Various questions can be raised about this conventional view. *First*, why is Japan's saving rate so high? Is the saving induced by the favourable tax treatment of savings; by the underdeveloped social security system, or by the high price of land and houses? *Second*, high Japanese saving rates are not a new phenomenon. Yet why did the cumulative surplus of Japan's current account, which amounted only to 0.3 per cent of cumulative nominal GNP during 1973-82, quickly swell from 0.6 percent of GNP in 1981 to 4.4 percent in 1986? How were Japan's domestic saving-investment balances related to the OPEC shocks in the 1970s and Reagan shock in the 1980s? *Third*, what are the implications of unwinding the present huge international imbalances for Japan's saving-investment balances? What is the role of the exchange rate in correcting such imbalances? It is often argued that an exchange rate change would not contribute much to a reduction in Japan's external surplus, unless its domestic saving-investment balances are altered. How can we reconcile the role of the exchange rate with the identity between the current account imbalance and the domestic saving-investment imbalance?

This paper will attempt to shed light on these fundamental questions.

1. High household savings in Japan and the external surplus

By international standards, the saving rate of the Japan's household sector, at about 16 percent in recent years, is indeed high.

Three factors are often cited as possible major causes for high household savings in Japan: (1) favourable tax treatment for both small and large scale savings, (2) the underdeveloped social security system, and (3) high prices of land. Each of these is discussed in turn.

1.1 The taxation of savings.

From April 1, 1988, the favourable tax treatment of small savings was abolished. The so-called maruyu-system (tax exemptions of interest income from small savings up to Yen 9 million outstanding per person), was abolished and is now replaced by a flat 20 percent tax rate which is, in turn, integrated with the general income tax system. However the maximum tax rate of 35 percent on stock dividends remains unchanged.

It is uncertain how Japanese savers will react to the change in the tax system. The extent to which the household saving rate is responsive to after-tax real interest rates is not clear, either in Japan or in other economies. In particular, when consumers have a life-time savings target, after tax real interest rates may not greatly influence saving behaviour. Since saving is a residual of disposable income after consumption, tax systems influencing consumption behaviour can be more decisive in determining savings. Under the on-going revenue-neutral tax reforms, a consumption tax of 3 percent and a capital gains tax will be introduced from April 1989, while corporate and personal income taxes have been reduced, in addition to the removal of the favourable tax treatment of savings. Because the on-

going tax reforms include both saving-encouraging and discouraging elements, as indicated by their major components, the net impact on saving appears to be roughly neutral.

1.2 The Social Security System

Surveys are available which compare saving motives in Japan with those in the U.S. For both countries, "preparation for unforeseen circumstances" is the top motive, and "the purchase of land/housing" is the fourth most important motive. However, "one's childrens' educational and marriage expenses" is second, and "preparations for old age" third in Japan, whereas the order is reversed in the U.S. (Horioka (1988)).

The social security system has changed so substantially since FY 1973 that that year is even labelled the commencement year of welfare. The annual average pension of Yen 1.8 million ($13,850 at Yen 130 per dollar), for those who have paid social contributions for 30 years, now accounts for about 60 percent of average present wages excluding bonus payments. Social security benefits as a whole increased from around 6 percent of net national product in the 1960s to 14.6 percent in 1986. Medical costs have also increased rapidly from 4 percent of net national product in the second half of 1960s to nearly 7 percent in 1986, with the proportion financed by social contributions and the public budget rising from 70 percent to nearly 90 percent of total costs.

Hence, the question is not whether the social security system is underdeveloped in Japan, but how rapidly an ageing population will affect household saving rates under the modern social security system. The White Paper on the Japanese Economy for fiscal 1985 addressed this issue in great detail (Chapter 3). In recent years, large income transfers have been taking place from younger generations to current retirees. According to IMF projections, in 2005 the share of population aged 65 and over in Japan will be about 17 percent compared with 10.5 percent in 1985. In fact the Japanese population is currently the youngest among advanced countries, but in 20 years it will be the second only to Germany whose population which will remain the oldest throughout the entire projection period up to 2025.

The Japanese public pension system is now a de-facto pay-as-you-go system. An average worker 60 years old will receive around Yen 36 million of pension benefits (net present value at April 1985) but his own contributions to the Employees' Pension System will only be around 16 percent of these benefits. In addition, the medical cost per capita of old persons aged

75 and over is six times greater than that of young persons. The demographic factor alone will increase total medical cost by about 50 percent in 20 years (Fukao and Inouchi (1986)).

Such massive transfers of income from younger to elder generations, particularly in the case of the public pension system, can be an important factor reducing the household saving rate. Even when nearly 30 percent of net public pension benefits is assumed not to be consumed but bequeathed, the household saving rate is projected to decline by 5.5-7.0 percentage points from 1983 to 2005 (The White Paper on the Japanese Economy for FY 1985). The range of the decline in the household saving rate depends particularly on the age at which the pension benefit will start to be paid (either 60 or 65 years old) and the social security contribution rate, as well as the response of the saving behaviour to increasing social security contributions and benefits. On the national income account basis, actual household saving rate was at a peak of around 23 percent in 1974-76, then declined to 16.0 percent in 1982 and has since stayed around this level. It appears that the saving rate of Japanese households has already been on a gradual declining trend since the mid-1970s (Table 1).

1.3 Land and housing prices.

Several stylised facts about the socio-economic behaviour of Japanese households are important to an understanding of the relationship between savings and the high price of land. *First*, the household balance sheet on the national income basis indicates that land accounts for about 57 percent of household net worth in Japan compared with about 30 percent in the U.S. *Second*, a majority of Japanese retirees who face a significant reduction in income merge with younger households and live together with their children. When households of two generations merge, the parents usually invite one of their children (often the eldest son or daughter) to move in to live with them, whereas in the U.S. it is more usual for parents themselves to move in to live with a son or daughter. *Third*, retirees do not want to dissave much during the post-retirement period, and wish to leave substantial bequests to their children, mostly in the form of land and houses. This feature of the socio-economic behaviour of the Japanese households contradicts the life-cycle hypothesis that people save during the pre-retirement period and dissave after retirement, leaving few bequests.

Given these features, a hypothesis can be developed that the high cost of land and houses and intergenerational asset transfers interact to result in higher household saving rates. This is because expensive land and

houses force the middle-aged to save a great amount, the bulk of which will, however, not be dissaved during the post-retirement period, since the elderly want to be cared by their children through the intergenerational merging of households. (Balassa (1988) and Hayashi, Ito, & Slemrod (1987). However, the latter paper did not introduce the role of land in to the analysis.)

Several questions can be raised about this hypothesis. *First*, it is assumed in this hypothesis that the assets of Japanese retirees are tied up in the relatively illiquid (compared with financial assets) form of land and houses yielding little financial current return, so that their post-retirement life has to be taken care of by their children. However, the reasonably well developed public pension system noted above can now greatly mitigate the problem of the illiquid position of retirees. Both land and houses are marketable, too. *Second*, if children can move into their parents' houses, younger generations will not need to save for the purpose of buying expensive land and houses, inducing them to lower their saving rates. The

Table 1

Saving rates of Japan's Households, 1955-1986

(Average propensity to save out of disposable income (percent)

1955	11.9	1971	17.9
1956	12.9	1972	18.2
1957	12.6	1973	20.4
1958	12.3	1974	23.2
1959	13.7	1975	22.8
1960	14.5	1976	23.2
1961	15.9	1977	21.2
1962	15.6	1978	20.8
1963	14.9	1979	18.2
1964	15.4	1980	17.9
1965	15.8	1981	18.3
1966	15.0	1982	16.5
1967	14.1	1983	16.3
1968	16.9	1984	16.0
1969	17.1	1985	16.0
1970	17.7	1986	16.6

Source: Economic Planning Agency, Report on National Accounts from 1955 to 1969 (1988) and Annual Report on National Accounts (1988).

average size of family is currently 3.7 persons in Japan. *Third*, expensive land and house prices explain high household saving rates only if the demand for owner-occupied housing is price-inelastic. However, there are indications that such demand is price-elastic. *Fourth*, depreciation on housing is not negligible in amount, accounting for half of housing investment of recent years on the national income basis. Household savings motivated and mobilized for land and house purchase (i.e. downpayments and repayments of housing loan) are actually not much larger than the substantial total of depreciation, leading in effect to small or even negative *net* savings related to land and house purchase.

All in all, none of the three major factors, namely, the tax system, the social security system and the expensive price of land offers a convincing explanation for the high household saving rate in Japan. On the contrary, there has already been a declining trend since the mid-1970s, following a rising trend from 11 percent to 23 percent during the high growth period of 1955-74, as shown in Table 1. This declining trend may reflect a sharp deceleration in the growth rate of annual income of households and the rapid development of social security system in the 1970s and 1980s, whereas an acceleration of income growth and the underdeveloped social security systems may account for a rising trend during the high growth period of the 1950s and 1960s. There is the high possibility that the household saving rate will continue to decline in the forthcoming two decades due to the rapid ageing of Japanese population.

1.4 Savings and the external surplus.

Despite its recent declining trend, the fact remains that the saving rate of the household sector in Japan has been high by international standards. However, the high household saving rate *per se* cannot be solely responsible for the external surplus of Japan. This is simply because the external surplus is identical not to household savings alone but to total domestic savings minus total domestic investment. During the high growth period, for instance, Japan's domestic saving rate was high, but the high domestic savings were fully absorbed by high domestic investment, occasionally even resulting in external deficits.

Toward the end of the high growth period, i.e. by the late 1960s and very early 1970s, Japan began to register a chronic external surplus which was accentuated by the increasingly undervalued exchange rate of the yen under the Bretton Woods System.

In the 1970s, the sectoral pattern of the domestic saving-investment

balance changed considerably (Table 2). The excess of the corporate sector's investment over its savings declined by 2.5-3 percent of GNP. This was due essentially to the transition of Japan's economic growth path from the high rate of 11 percent per annum in the second half of the 1960s to the medium rate of 4-5 percent. This substantial slowing down of the actual and expected growth rate discouraged corporate investment, resulting in a decline of the excess of corporate investment over corporate profits (i.e. savings). Such a decline might have produced a large external surplus, but it was absorbed partly by oil deficits on the current account caused by two OPEC shocks, and partly by increasing deficits of the general government in the second half of the 1970s. A result was a surprisingly small external surplus, accounting for 0.3-0.4 percent of GNP in the 1970s.

In the 1980s, the external surplus increased to the order of 4 percent of GNP, with the main counterpart being a large decline in the deficits of the general government. During the same period, saving-investment balances in both the household and the corporate sector increased, but the increases were rather modest.

This brief sketch of the history of changing Japan's saving-investment balances by sector clearly indicates that the high savings rate of the household sector alone is by no means sufficient to account for Japan's external surplus. In fact, its external surplus has swung quite widely, without any close association with the high saving rate of the household sector or its variations.

Table 2

Saving-Investment Balances by Sector in Japan, 1970-86

(Annual averages percent of nominal GNP)

Fiscal Years	Household			Corporate			General Government						Overseas
									Saving-Investment (S-I)				
	S	I	S-I	S	I	S-I	S	I	Total	Central Gvmt	Local Gvmt	Social Security Fund	External Account
1970-72	14.0	5.2	8.8	17.4	25.2	−7.7	6.8	6.0	0.8	−0.7	−0.8	2.4	−1.9
1976-80	17.9	8.8	9.2	10.7	15.7	−5.0	2.7	6.8	−4.1	−5.0	−1.6	2.5	−0.4
1985-86	14.7	4.8	9.8	11.9	17.3	−5.4	5.1	5.7	−0.7	−3.4	−0.4	3.1	−4.2
Reference 1973-75	18.6	7.6	11.0	10.9	21.7	−10.8	5.5	6.0	−0.6	−1.7	−1.5	2.5	0.5

Note: Because of rounding, detail does not necessarily add to totals.

Source: Economic Planning Agency, Annual Reports on National Accounts

2. Wide variations in Japan's external balance

Mechanisms for maintaining the identity between the current account balance and the domestic saving-investment balance vary, depending on the nature of the shock. In order to examine such mechanisms, it is useful to ask why Japan's external imbalance has swung widely in the 1970s and 1980s.

Table 3 underlines three key facts. Firstly, Japan became a net capital exporter toward the end of the 1960s, as indicated by the emergence of chronic external surpluses between the mid-1960s and the early 1970s. These surpluses averaged about 1.5 percent of GNP (Yoshitomi 1983). Secondly, in the 1970s and 1980s, Japan's external surplus swung enormously, varying from −0.9 percent of GNP in 1974 to +1.8 percent in 1978 and again from −0.9 percent of GNP in 1980 to +4.4 percent in 1986. Thirdly, the current account surplus to GNP ratio exhibited a rapidly rising trend at *constant* prices in the 1970s and 1980s, when the ratios at *current* prices varied widely without a clear trend.

Let us discuss the mechanisms at work behind such wide fluctuations, and also the contrasting movements between the value and the volume of Japan's external surpluses in the 1970s and 1980s.

In the wake of the first and the second oil price hikes, the current account worsened both in 1973-75 and in 1979-80 (Table 3). This worsening had its counterpart in declines in the excess of domestic savings over investment. This was because household and government consumption at current prices were bound to increase at least temporarily to accommodate oil shock-induced general price increases. Corporate savings also declined because of the increased share of wages in value added as the terms of

trade deteriorated sharply. These effects of two oil shocks, resulting in a relatively modest surplus during the whole period 1973-81, masked an increasing underlying surplus. Apart from these spontaneous and temporary influences of oil prices hikes on savings-investment balances, sectoral savings-investment balances during the same period revealed two outstanding features.

First, as mentioned in Section 1, corporate investment declined sharply in relation to GNP due to a slow-down of the underlying growth of GNP from high to medium rates. A result was a much smaller excess of corporate investment over savings, as shown in Table 2. Since the household sector's excess savings over investment remained more or less unchanged in the second half of 1970s from the early 1970s, this smaller excess investment by the corporate sector tended to produce a larger excess of total private savings over investment, potentially generating a larger external

Table 3

Japanese Current Accounts and Terms of Trade, 1967-87

	Terms of Trade percentage changes	Current Account Balance (percent of GNP)	
		at current prices	at constant prices
1967	3.3	−0.0	1.6
1968	−1.3	0.8	2.4
1969	−0.9	1.3	2.9
1970	0.3	1.1	2.0
1971	5.1	2.6	2.9
1972	3.9	2.3	2.4
1973	−7.9	0.0	0.0
1974	−20.0	−0.9	1.1
1975	−5.3	−0.1	3.1
1976	−4.0	0.9	4.3
1977	0.1	1.4	5.3
1978	10.8	1.8	4.5
1979	−16.4	−0.8	3.4
1980	−20.2	−0.9	6.8
1981	0.4	0.6	8.3
1982	−0.7	0.8	8.6
1983	−1.0	1.9	9.0
1984	0.6	2.9	10.2
1985	1.8	3.8	11.1
1986	25.4	4.4	9.6
1987	0.1	3.8	8.8

Source: Economic Planning Agency, Annual Report on National Accounts

surplus. However, this lower corporate investment exerted a deflationary impact on the Japanese economy in addition to the oil shock-induced recessionary effect. To cope with this situation, the government reduced personal income taxes in 1976 and increased public works expenditure in 1977-78. The result was a substantial increase in the deficit of the general government, which helped to offset the larger excess of total private savings over investment (see Table 2).

However, if we only look at these sectoral savings-investment balances at *current* prices, this will mask the second important feature of the adjustment under two oil shocks, which is the *volume* adjustments of exports and imports. By expanding the volume of net exports, the Japanese economy overcame the large current account deficit caused by the price hike of imported petroleum, and restored Japan's position as a net capital exporter (Yoshitomi 1985 for greater detail). The share of real net exports increased by 5.3 percent of real GNP between 1973 and 1977, which more than compensated for the nominal oil deficit of approximately 4.5 percent of GNP attributable to the first oil shock. Again after the second oil shock, the share of real net exports gained by another 5 percent of real GNP between 1979 and 1982 when the oil deficit again amounted to about 4.5 percent of nominal GNP (Table 4).

Hence, as Table 4 indicates, throughout the whole period of the oil shocks (i.e. between 1973 and 82), while the annual average of nominal current account surplus accounted for only 0.3 percent of GNP, the volume of exports of goods and services increased by 11.6 percent per annum, in sharp contrast to a mere 2.2 percent annual increase in the volume of imports. This lopsided development stands in a sharp contrast to the parallel growth in volume during the high growth period of 1960-70. When the rate of increase in the volume of exports far exceeds that of imports, the expansion in net export volume tends to hurt output and employment in the import-competing and exporting industries of trading partner countries. It is no wonder that such an extraordinary expansion in net exports in real terms caused trade conflict with Japanese trading partner countries, despite the small nominal external deficit. The expansion eventually led to a relatively large nominal surplus, accounting for 1.4-1.8 percent of GNP in 1979-78 and 0.8-1.9 percent in 1982-83 (see Table 3).

Since the early 1980s, however, the Japanese external account has changed its character. Increases in surpluses became largely a reflection of an expansion of the U.S. current account deficit, as vividly indicated by

Table 3. From 1981 to 1986, the U.S. merchandise trade balance deteriorated uniformly and proportionately, across both goods and countries (Lawrence and Litan 1987). Changes in the U.S. trade balance for three major categories (capital goods, automobiles including parts, and consumption goods) were almost exactly proportional, that is, the magnitude of the actual deterioration of the trade balance for each category (namely, $43-45 billion for each) was almost exactly the same as what it would have been if the 1981 proportions of each category to total imports and exports had remained unchanged. Likewise, the deterioration of the U.S. trade balance was pervasive across major trading partner countries and regions. The export and import share of each trading partner in U.S. total exports and imports remained largely unchanged from 1981 to 1986. Thus, for instance, U.S. imports of goods from Japan accounted for 25 percent of merchandise imports in 1981, and 27 percent in 1986. Imports from Europe were 22 percent in 1981 and remained at the same proportion 5 years later. The U.S. deterioration with Asian NICS was also proportionate. The main disproportionate change in favour of the U.S. was with Canada. This was, however, more than offset by a disproportionate deterioration with LDCs,

Table 4
Japanese Exports and Imports
(percentages)

	High-growth period (1960-70)		Oil crisis period (1973-82)	
	at 1970 prices	at current prices	at 1975 prices	at current prices
Exports (average annual growth)	15.5	16.6	11.6	15.6
Imports (average annual growth)	14.8	15.9	2.2	13.7
GNP (average annual growth)	10.8	16.4	4.0	10.2
Contribution of surplus to growth of GNP	1.4	1.3	32.4	2.0
Change in terms of trade (−indicates deterioration)	6.2		−43.3	

Source: Economic Planning Agency, Annual Reports on National Income Statistics, 1978 and 1982.

Table 5

United States Trade in Manufactures, 1981-86

	Exports (Percent of total)		Imports (Percent of total)		Change in trade balance 1981-86 Actual (billions of dollars)	Change in trade balance 1981-86 Proportional[1] (billions of dollars)
Category	**1981**	**1986**	**1981**	**1986**		
Capital goods	69.6	67.8	33.5	32.5	−43.2	−43.6
Automotive products	15.6	19.0	28.7	33.4	−45.8	−38.4
Consumer goods	14.8	13.2	37.8	34.1	−44.0	−50.8
Region						
Canada	20.2	24.0	20.2	17.2	−14.4	−30.3
Japan	6.1	10.0	25.3	27.4	−38.4	−38.4
Europe	23.2	24.0	22.4	22.4	−32.1	−33.5
Other developed countries	8.8	8.3	5.6	5.3	−8.3	−8.3
LDCs	40.5	31.6	25.0	25.9	−34.9	−36.9
Asian NICs	5.9	7.7	13.6	15.5	−23.3	−20.5
Centrally planned economies	1.2	2.1	1.5	1.8	−1.5	−2.2
Total (billions of dollars)	166.8	169.8	156.4	308.9	−149.6	−149.6

Note: [1]*The change in trade balance for each category or region if the 1981 proportions of total imports and exports had been maintained.*

Source: R. Z. Lawrence and R. E. Litan "The Protectionist Prescription: Errors in Diagnosis and Cure". Brookings Papers on Economic Activity, 1987.

mainly Latin American countries.

This pervasive deterioration of the U.S. trade balance across major categories of goods and trading partner countries and regions strongly suggests both that the origin of the deterioration was in the U.S., and that the international payments imbalance which emerged after the early 1980s was macroeconomic in nature rather than microeconomic.

It is, however, often argued that the disparity between the expansionary U.S. and contractionary Japanese and German fiscal policies must have contributed to the emergence of the major international imbalances. The structural (i.e. cyclically adjusted) deficit of the U.S. general government

increased by 3.1 percent of GNP from 1981 to 1985, whereas that of Japan declined by 3.3 percent during the same period (OECD Economic Outlook). How can we reconcile this conventional view with the pervasive deterioration of the U.S. trade account across countries?

In terms of saving-investment balances, each surplus country will register an excess of domestic savings over investment equal to the current account surplus, regardless of the origin of a shock. The emergence of a large excess of domestic savings can, therefore, be either passive and responsive to the externally originated shock or be caused by a surplus country's own action. The nature of the increased surplus of Japan in the 1980s was a mixture of a passive response to the external shock of the net export expansion and its own action on the fiscal front, as will be discussed below.

It can be argued that Japan could have responded to the inflationary excess demand "shock" of its net export increase caused by U.S. fiscal expansion by adopting a much tighter monetary policy. Such a policy would have helped to avoid the possibility of domestic overheating, and would have minimized increases in the external surplus through the possibility of a smaller yen depreciation than was actually the case with the fiscal contraction.

Actually, monetary policies were geared to a somewhat tighter stance during the period of the excessively weak yen in 1983-85. This tightening responded both to the potential threat of strengthened protectionism in the U.S. and to the acceleration of inflation at home. Under the floating regime, tighter monetary policy will certainly induce a currency appreciation, which in turn will discourage net export expansion. But at the same time the contractionary effect of tighter monetary policy on income will reduce imports and hence increase net exports. The net effect of tighter monetary policy on the external account is, therefore, ambiguous. Empirical studies based on world econometric models generally indicate that under a floating regime the current account will not be much changed by monetary policy.

More significantly, however, Japan pursued fiscal contraction for domestic reasons: the government deficit in the second half of the 1970s had become too large (see Table 2). Japan's fiscal consolidation was also consistent with the medium-term orientation of fiscal policy as recommended at Ministerial meetings of the OECD in the early 1980s. If Japan had adopted an expansionary fiscal policy, aimed at reducing the external surplus by expanding domestic demand even though the yen was under-

valued, as many Keynesian economists recommended, the result would have been an overheating of the economy and higher nominal and real interest rates, since net export expansion was essentially exogenously determined both by the U.S. fiscal expansion and by dollar appreciation. This impetus for the expansion of Japanese exports could not have been offset by a fiscal expansion-induced appreciation of the yen.

Japan's fiscal contraction may indeed have contributed to an increase in its external surplus over and above the surplus generated by external factors. However, the size of the U.S. external deficit was not strongly affected by fiscal contraction in Japan, due to the sheer scale of the U.S. economy and its relatively small export dependence on Japan. The U.S. external deficit was essentially home-made. By contrast, the scale of Japan's surplus was enlarged not only by the U.S. fiscal action and dollar appreciation but also (albeit less importantly) by its own fiscal contraction. This asymmetry in spill-over effects on the external account of trading partner countries between the U.S. and Japan is very important for understanding the nature of international imbalances in the 1980s, and as argued below, for clarifying the policy issues which arise. Thus, the crowding out of U.S. net exports under its fiscal expansion and dollar appreciation would not have been much affected by different Japanese fiscal policies.

In sum, the Japanese economy would have become overheated by its exogenously determined net export expansion, if the excess of domestic savings over investment had not been increased by fiscal contraction and a tighter monetary policy stance. Of course, Japanese fiscal contraction was designed quite independently of the expansionary U.S. fiscal policy after 1981-82, and was implemented with less economic difficulty because of the net export expansion. The annual average rate of real GNP growth was about 4.4 percent between 1982 and 1985, which was slightly greater than the potential growth rate estimated by the OECD. The rate of unemployment remained more or less stable at 2.5 percent, and the consumer price index remained around 2.1 percent per annum. The volume of Japanese exports expanded by about 10 percent per annum from 1982 to 1985, compared with an increase of only 2.4 percent in imports during the same period. As a result there were trade frictions, and strengthened protectionism emerged once again in the U.S.

The issue of the sustainability of large current account imbalances has remained acute even after the turn-round of U.S. net export volume in 1987. The shift of U.S. real net exports toward expansion from its previous contraction should mitigate protectionist sentiment. American domestic

producers have quickly been restoring their export market share and, albeit more slowly, their market share in the home economy. Hence, the protectionism associated with the pervasive deterioration of the U.S. trade balance in the first half of the 1980s is now bound to abate. The more important issue now is the sustainability of the imbalances. The question remains whether or not the large external imbalances will be sustainably financed by private capital movements without a disruptive fall of the value of the dollar. Wall Street has become extremely sensitive to the international outflow of Japanese savings through institutional investors.

Already in 1986, total annual national savings in Japan (the sum of the savings of households, general government, and corporations) amounted to $352.8 billion. At Yen 168.5 per U.S. dollar, this is 3.5 times as large as those in the U.S. ($103.5 billion). In 1987 Japan's national savings grew to $434.5 billion, which at Yen 144.6 per U.S. dollar is probably more than four times U.S. national savings.

3 Exchange rate changes and saving-investment balances

It is a well known proposition in textbook international economics that if external and internal equilibria are to be attained simultaneously, domestic demand shifts (i.e. expenditure policy) and exchange rate changes (i.e. switching policy) complement each other and are not substitutes. More precisely, if only one of the two policy instruments were mobilised for correcting international payments imbalances, the adjustment cost would be unacceptably high in terms of inflationary or deflationary impact. Therefore, a reduction in the budgetary deficit of a country with an external deficit has to be accompanied by a currency depreciation which will clear the excess of supply over demand caused by the fiscal contraction. The reverse is true for a surplus country. What is even more crucial is the empirical observation of the scale of the contribution of each of the two policy instruments to the external and domestic adjustment.

Elasticity pessimism is wrong so far as the *partial* effect of exchange rate changes of the *volume* of exports and imports is concerned. Many econometric studies confirm that the Marshall-Lerner condition is met for the U.S., Japan and Germany. In the very short-run (less than one year), the sum of the price elasticity of exports and imports is less than unity, hence there are J curve effects. However, the long-run sum considerably exceeds unity (Table 6). Thus, simulation results from the Economic Planning Agency world model indicate that a sustained exchange rate change of 10 percent would reduce trade imbalances by more than 1 percent of GNP (annual average effect over six years) for the U.S., and by more than 1.5 percent of GNP for Japan, at constant prices. Measured in current prices, however, the effect of the exchange rate change is weaker. The trade

account imbalances would decline by less than 0.3 percent of GNP for the U.S. and by 0.7 percent for Japan. In other words, the value effects of the exchange rate change turn out to be about one-third to half of the volume effect. Nevertheless, this value effect remains reasonably large.

However, the analysis of the effect of the exchange rate changes does not stop there. This is because these simulation results are based on the assumption that export and import prices are altered proportionately to the extent of the exchange rate change, while other prices and incomes are assumed to remain unchanged under the exchange rate shock. If incomes and prices other than those of exports and imports are allowed to be influenced endogenously by the exchange rate shock, this more realistic assumption yields a much less favourable outcome. That is, the potential external account improvement which is due simply to export and import price changes alone will be considerably offset by changes in incomes and other prices. The Economic Planning Agency world model simulations indicate that the potential external improvement attributable to a dollar

Table 6
Comparison of Export and Import Elasticities

	income elasticity		price elasticity	
	short-run (1st year)	long-run (6th year)	short-run (1st year)	long-run (6th year)
Export of goods				
US	1.40	1.40	0.41	0.63
Japan	1.56	1.56	1.18	1.38
Import of Goods				
US	1.14	1.81	0.86	0.94
Japan Total	0.98	1.18	0.25	0.33
Mineral Fuels	0.94	0.94	0.06	0.06
Foodstuffs & Raw Materials	0.40	0.45	0.20	0.23
Manufactures	1.70	2.02	0.64	0.71

Source: The EPA World Model Group "External Balance Effects of Exchange Rate Changes and Macroeconomic Policies – Main Issues on Simulation Results of the EPA World Model –," March 1988, Presented for the Fourth EPA International Symposium on Global and Domestic Policy Implications of Correcting External Imbalances.

Table 7

Differences in the Effect of Exchange Rate Changes[1] between Partial and Full Equilibrium Simulations

(percentages of GNP)

	Volume effect	Value effect
Japan[2]		
Partial equilibrium[3]	1.52	0.70
Full equilibrium[3]	0.69	0.36
US[2]		
Partial equilibrium[3]	1.05	0.28
Full equilibrium[3]	0.24	0.04

Notes: [1]*The effect on the trade account of a sustained 10 percent change in the exchange rate of respective currency.*

[2]*Annual average of simulation results for the period of 1988-92 in terms of deviations from a base-line.*

[3]*Partial equilibrium means balance of payments block simulations, on the assumption that incomes and prices other than those of exports and imports remain unchanged despite exchange rate changes; and full equilibrium means full-link world model simulations, on the assumption that all incomes and prices in all countries in the model are endogenously affected by exchange rate changes, including interactions among countries.*

depreciation will be considerably offset by domestic inflationary pressures, and by a deflationary impact on world trade which in turn discourages U.S. exports, and leads to higher nominal interest rates in the U.S.

Therefore, even the volume effect on a sustained 10 percent exchange rate change under the fully endogenized equilibrium simulations would be only 0.24 percent of GNP for the U.S. and 0.69 percent of GNP for Japan, which is about quarter to half of the volume effect under the partial equilibrium solutions, as shown in Table 7 above. Not surprisingly the *value* effect under the *full equilibrium simulations* would become even smaller. The endogenized full equilibrium outcome for the trade account improvement in terms of value would be only 0.04 percent of GNP or one-seventh

of the partial equilibrium value effect for the U.S. and less than 0.4 percent of GNP or about half of the partial equilibrium outcome for Japan. In other words, elasticity optimism can be supported only by a "partial" equilibrium analysis of exchange rate changes. Table 7 shows the details in summary form.

In fact, the volume of U.S. exports has actually been increasing by 20 percent per year over the past one and a half years. The OECD estimates that the market share for U.S. exports in the world economy will be restored to the mid-1960s level by 1989 given present exchange rates (OECD Economic Outlook June 1988). The volume of Japanese imports was 45 percent higher and that of manufactured imports 85 percent higher in the July-September quarter of 1988 than in October-December 1985, whereas the volume of exports remained virtually unchanged throughout the same period. Compared with these remarkable volume adjustments, the value adjustments have been slow, particularly in current dollar terms. The ratio of the current account imbalances to GNP at current prices declined to 2.9 percent for both the U.S. and Japan in the first half of 1988 from the peak of 3.7 percent (the first half of 1987) and 4.6 percent (the second half of 1986) for the U.S. and Japan respectively. At constant prices, however, the ratio of the U.S. deficit to GNP has declined by 1.4 percent of GNP between 1987 to the first half of 1988, and the Japanese surplus by 3.5 percent of GNP between 1986 to the first half of 1988. In other words, the current account adjustment at current prices, as a ratio of GNP, was only about half the adjustment at constant prices.

In sum, elasticity optimism on the effect of exchange rate changes may need to be converted into overall adjustment pessimism. The mechanisms for producing the identity between external export-import balances and domestic investment-saving balances through exchange rate changes should be re-examined, particularly by distinguishing between constant and current prices effects and between partial and full equilibrium analysis.

If the exchange rate plays a role in affecting the current account balance, it must also alter domestic saving-investment balances. For instance, a currency depreciation with unchanged nominal money supply tends to increase corporate profits in externally traded goods, dampen domestic consumption through the acceleration of inflation and the real wealth effect, and perhaps improve budgetary balance, thereby increasing domestic savings, (see Turner (1988)). Whether this increase in domestic savings exceeds the rise of business investment induced by the net exports

expansion is an empirical question, but it is often suggested by macroeconomic models that savings will increase relative to investment.

The policy implications of the above analysis of the effect of exchange rate changes are that unless absorption policies are put in place, exchange rate changes alone will not lead to an effective correction of external imbalances. The frequently argued issue of whether or not a further dollar depreciation is needed should be analysed in the context of the complementary role of exchange rate and fiscal policy, though as argued below the issue of the time sequence of the adoption of each instrument is also important.

Suppose that the U.S. budget deficit is reduced by $15 billion every year in the forthcoming five years (1988-92), which would require a $23 billion (about 0.4 percent of GNP) cut of government expenditure every year, totalling a $75 billion reduction of the budget deficit and a $115 billion cut of government expenditure over five years. According to simulation results based on the fully-linked Economic Planning Agency world economic model, this fiscal contraction in the U.S. would reduce its current account deficit by $46 billion in 1992 from the 1987 baseline, and, as an important side effect, reduce Japanese current account surplus by $29 billion in the same year (Table 8). Suppose the baseline for the current account balance in 1992, assuming present exchange rates and unchanged macroeconomic policies, is $105 billion deficit for the U.S. and $79 billion surplus for Japan. This is the level projected by the OECD for 1989 (Economic Outlook, December 1987). Then, the U.S. deficit would decline to $64 billion in 1992, on about 1 percent of GNP. The Japanese surplus in the same year would decline to $51 billion or about 1.5 percent of GNP. Although it is indeed debatable whether imbalances reduced to these GNP ratios would be sustainable or not, they would certainly be more sustainable than those of today.

It is worth noting that, under the above simulation results, the U.S. net external debt to GNP ratio would be contained to 12 percent in 1992, and that U.S. nominal interest rates would decline toward the underlying growth rate of nominal GNP. The current account deficit of about 1 percent of GNP in 1992 would largely reflect net investment income paid abroad to service net external liabilities amounting to 12 percent of GNP in the same year. The U.S. merchandise trade account would be in relatively small deficit. These effects of U.S. fiscal contraction would help its external imbalances towards a more sustainable position. For Japan the scale of its external surplus, ranging between 1.5 and 2.0 percent of GNP, could be inter-

preted as a restoration of the Japanese economy to its role as a "normal" capital exporter (as indicated in Section II), whereas its surplus of more than 3-4 percent of GNP in recent years has clearly been unsustainable.

These improvements could be achieved without further exchange rate changes in real terms as shown in Table 8. The same simulation exercise also indicates that the effective exchange rate of the dollar would depreciate by 1.4 percent a year, and the yen rate appreciate against the dollar by 1.9 percent a year. If the exchange rate changes already embodied in the

Table 8

Effects of US Budget Deficit Reductions
and Policy Reactions in Other Countries
(endogenized Exchange Rate)

	U.S.				Japan			
	base line	Case 1[1]	Case 2[2]	Case 3[3]	base line	Case 1[1]	Case 2[2]	Case 3[3]
Annual Average Rates of Change 1988-1992 *(percent)*								
Real GDP	2.5	−0.3	−0.3	−0.2	3.5	−0.5	−0.2	−0.0
Consumer Price Index	4.0	−0.3	−0.2	−0.2	1.3	−0.1	−0.1	−0.0
Exchange Rate[4]	1.7	1.4	1.5	0.6	−2.8	−1.9	−2.3	−2.1
End 1992 Levels								
Exchange Rate (yen/$)	–	–	–	–	130	−13.2	−16.0	−14.8
Government Balance ($ billion)	−115	75	77	85	3.7	−1.6	−3.0	−2.7
(percent of GNP)	(−1.9)				(0.8)			
Current Account ($ billion)	−105	46	50	59	79	−29	−37	−30
(percent of GNP)	(−1.7)				(1.8)			
Interest Rate (%)[5]	8.5	−3.7	−3.3	−2.7	3.5	−1.3	−0.3	−0.1
Annual Average Rates of Change 1988-1992 *(percent)*								
World Trade	4.0	−0.5	−0.3	0.1				

Notes: [1]*Case 1: $15 billion reduction of US deficit (i.e. $23 billion expenditure cut) every year from 1988. Figures show differences from the base line.*

[2]*Case 2: In addition to Case 1, sustained increase in real government expenditure by 1% of GNP in Japan and Germany from 1988. Figures show differences from base line.*

[3]*Case 3: In addition to Case 2, sustained increase in real government expenditure by 1% of GNP in six other countries (France, U.K., Italy, Canada, Australia and South Korea). Figures show differences from base line.*

[4]*U.S.: Effective exchange rate (U.S. dollar/foreign currencies). Japan: bilateral exchange rate (yen/U.S. dollar). Minus figure indicates appreciation.*

[5]*Interest rate: average of short-term and long-term interest rates.*

Source: See Table 7.

baseline of the EPA simulations are added to those induced by the U.S. fiscal contraction, the dollar would depreciate by nearly 3 percent a year over the 1988-92 period and the yen appreciate by nearly 5 percent a year, essentially reflecting international differentials both of price inflation and of productivity growth disparities between the tradable and non-tradable goods sectors.

The issue of the time sequence of exchange rate changes and fiscal policies is usually ignored in textbook international economics. The complementary roles of the exchange rate and fiscal policies should take into account the time sequence of the actual implementation of policies. It can be argued that the exchange rate changes since 1985 have been substantial, and that complementary fiscal actions have lagged behind. Therefore, fiscal actions should now be emphasised more than exchange rate changes, in order both to avoid the possible overheating of the U.S. economy and to reduce international payments imbalances. This is because that economy is now at the natural (or full) employment situation and in the seventh year of expansion, and the volume of exports has been expanding by about 20 percent per annum and export-induced investment in manufacturing industry is strengthening.

It is widely agreed that medium-term swings (rather than short-run volatility) of the real exchange rate away from the underlying long-run equilibrium exchange rate is counter-productive. Such medium-term swings will lead to the diversion of resources away from that international allocation which reflects underlying comparative advantages, and is therefore detrimental to the sound development of world trade and investment. Unfortunately, however, the unwinding of the very inflated international imbalances now requires a medium-term swing of the real exchange rate *in the opposite direction* to that which occurred in the first half of the 1980s. If the real exchange rate remained at the long-run equilibrium rate, the market share of exports in the world and imports in the domestic economy would remain largely unchanged for both deficit and surplus countries, and would not contribute to unwinding the large imbalances. Therefore, the present requirement for the medium-term swing of the real exchange is in conflict with the general understanding that such a medium-term swing is damaging to the sound international allocation of resources. It is this conflict that also underlines the important complementary role of fiscal policy in the present context, since the U.S. fiscal contraction can now reduce external imbalances to more sustainable levels without unduly relying on further exchange rate changes in real terms.

As noted above, the spill-over effect of U.S. fiscal contraction will also contribute to a reduction in the Japanese external surplus. What are its implications for Japan's saving-investment balances? The deflationary impact of the U.S. fiscal contraction outlined above would be a 0.5 percent slow-down from the baseline annual growth rate of Japan's real GNP in the forthcoming five years. Virtually the same slow-down will occur in the annual growth rate of world trade as shown in Table 8. Suppose Japan and Germany jointly take expansionary fiscal policies by increasing government expenditure by 1 percent of GNP in the initial year and sustain the policy thereafter. Then, the annual growth rate of Japan's GNP and world trade would slow down only by 0.2 percent and 0.3 percent a year respectively, since such joint action would offset the deflationary impact of the U.S. fiscal action of 0.2-0.3 percentage points per year during the forthcoming five years. The external effect of this fiscal expansion would be a further $8 billion reduction of the Japanese surplus in 1992 on top of the $29 billion decrease noted above as induced by U.S. fiscal contraction. The joint fiscal actions by Japan and Germany would reduce the U.S. current account deficit by only $4 billion, even after taking into consideration the indirect stimulative impact on other countries (Table 8). There is in effect an asymmetry in the international spill-over effects of fiscal policies between the U.S. on the one hand and Japan and Germany on the other. This asymmetry arises essentially from differences both in the size of the economies and the income elasticity of imports.

Summing up the discussion in this section, the complementary role of fiscal policy and the exchange rate should underline the importance of changing the domestic saving-investment imbalances to facilitate the adjustment process initiated by the exchange rate change. Particularly in view of the substantial exchange rate changes which have already taken place, the necessary change in the U.S. domestic saving-investment balances through a reduction in the budget deficit is all the more desirable, not only for rectifying the U.S. own external deficit but also for reducing Japan's external surplus and preventing an extreme medium-term swing of the real exchange rate. In response to the deflationary impact of the U.S. fiscal contraction, Japanese fiscal expansion, if necessary, would also help to alter its own domestic saving-investment balances. The impact of this expansion on its own and U.S. external imbalances is, however, quite limited, when set against the impact of a cut in the U.S. budget deficit.

4 Conclusions

Responsive actions by the Japanese economy to the exchange rate change were vividly exhibited over the past two years. From the July-September quarter of 1986 to the corresponding period of 1988, the current account surplus relative to GNP on a national account basis declined from 4.6 percent to 3.0 percent. During the same period residential construction in relation to GNP increased by 1.2 percentage points (4.8% to 6.0%), private business fixed investment by 1.6 percentage points (15.9% to 17.5%), while public fixed capital formation remained unchanged relative to GNP (at 6.7%). These investments were helped by low interest rates; and also encouraged by the fiscal policy package of May 1987, consisting mainly of about 15 percent increase in public works expenditure in FY 1987 (ending March 1988).

This adjustment process in 1987-88 clearly demonstrates that domestic investment holds the key to the effective utilisation of domestic savings and hence to a reduction of the external surplus to sustainable levels.

It need hardly be emphasized that buoyant domestic investment should be sustained not only through the medium term orientation of monetary and fiscal policies but also through structural reforms outlined in the Mayekawa report of June 1986.

Obviously, it is not sufficient to take the view that high Japanese household saving is mainly responsible for its persistently large external surplus. It is more important to recognise that in the course of the 1970s the corporate sector's excess of investment over its savings declined by 2.5 percent of GNP. This was essentially due to the transition of the economy from a high growth rate of 11 percent per annum in the second half of the

1960s down to a medium growth rate of 4-5 percent per annum, a transition which discouraged corporate investment more than corporate profits. This decline in the excess of corporate investment over savings in the 1970s was partly absorbed by oil deficits on the external account caused by two oil shocks and partly by increasing deficits of the general government. In the first half of the 1980s, the large reduction in the government deficit and some increase in the household sector's excess of savings over its investment became the counterpart of the large external surplus which emerged.

The most important feature of the 1970s and 1980s is that Japan's domestic saving-investment balances are increasingly related to the external shocks and associated balance of payments developments as explained in Sections I and II. Therefore, it is not sufficient to look at the domestic savings-investment balances ex-post in order to understand the development of Japan's external account. The interactions between the domestic saving-investment balances and international shocks, including the exchange rate change, are the key to understanding the substantial swings of Japan's external imbalances over the past fifteen years.

At the same time it is equally important to note that throughout the internationalization of the domestic savings-investment balances there has been a strong underlying trend since the end of the 1960s for Japan to continue to supply its excess domestic savings to the world economy. The existence of this trend was confirmed when the Japanese economy overcame the huge oil deficits in the 1970s and restored its position of capital exporter by expanding the volume of net exports, without permanent borrowings abroad. In the 1980s, however, this trend has accelerated to an unsustainable rate, while Japan has become extremely powerful in international financial affairs. The financially sustainable scale of external imbalances should be restored through the complementary role to be played by U.S. fiscal actions in response to the exchange rate changes which have already taken place. Only under such conditions, can Japanese savings continue to play a productive role in world economic development, based on sustainable cu.rent account surpluses.

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